

After a waste is generated and determined to be hazardous and is no longer useful you must decide to do one or more of the following: store, recycle, treat or dispose of the waste. The treatment of hazardous waste can be very simple to very complex. Often businesses treat hazardous waste illegally because they don't have a thorough understanding of what treatment is. One of the most important steps in the treatment process is the hazardous waste determination. See Chapter 2.

**Treatment** of a hazardous waste is any chemical, physical or biological process designed to change the character or composition of a hazardous waste or reduce its volume.<sup>1</sup>

**Common Treatment Technologies in Plating Shops include:**

- ✓ Cyanide destruction
  - Chemical oxidation
  - High pressure and temperature
- ✓ Metals removal
  - Chemical/Chromium reduction
  - Alkaline/Hydroxide precipitation
  - Sulfide precipitation
- ✓ Solids removal or liquid reduction
  - Clarification
  - Filtration
  - Evaporation
- ✓ pH Neutralization
  - Batch
  - Marble chips
  - Continuous pH treatment systems

**Tiered Permitting** is a five-tiered regulatory program that allows a business to treat hazardous waste rather than ship waste off site to another site for purposes of treatment or disposal. Treatment of hazardous wastes from plating shop operations fall into one of the following three tiers:

- ✓ **Permit by Rule (PBR)** – allows a facility treating certain waste streams with designated methods of treatment to notify HMD of its operation and be authorized to treat. This is the highest or most complex of the treatment tiers that a plating shop process may require.
- ✓ **Conditional Authorization (CA)** – applies to a category of waste streams, which, if treated using a specified treatment technology, and if they do not exceed established volumes of waste treated, are allowed to conduct the treatment upon notification to HMD. This category is a lower risk category than PBR but a higher risk category than CE.
- ✓ **Conditional Exemption (CE)** – applies to specific categories of lowest risk waste streams and treatment of limited volumes of waste that are authorized by HMD.

**Note:** Useful fact sheets describing each tier are available at DTSC's website.

Visit: [http://www.dtsc.ca.gov/HazardousWaste/Tiered Permit Guidance.cfm](http://www.dtsc.ca.gov/HazardousWaste/Tiered_Permits/Guidance.cfm)

**What requirements do I have to meet to treat my hazardous waste?**

- ✓ Your waste stream(s) and treatment process(es) must be listed in CCR Title 22, 67450.11

- ✓ You may only treat waste that is generated onsite and treatment must occur in tanks or containers
- ✓ You may **not** treat waste that is reactive or extremely hazardous
- ✓ You may **not** treat waste that requires a federal hazardous waste treatment permit under RCRA
- ✓ You may not treat waste in landfills, surface impoundments, injection wells, waste piles, land treatment units, or thermal destruction units.

**What is required if I treat under Permit By Rule (PBR)? <sup>2</sup>**

If you have a waste treatment process that falls into the PBR tier, you must comply with the following requirements:

- ✓ **Pre-Notification and Annual Renewals:** You are required to submit an initial Pre-Notification and annual renewals to the HMD and submit an amended notification whenever there is any change to the information contained in your most recent notification. This includes the following:
  - Business Activities Page
  - Business Owner/Operator Identification Page
  - Onsite Hazardous Waste Treatment Notification Facility Page
  - Onsite Hazardous Waste Treatment Notification Unit Page
  - Waste and Treatment Process Page for each unit
- ✓ **Generator Requirements:** You must comply with the hazardous waste generator requirements.
- ✓ **Record Keeping:** You must keep the following records onsite:
  - A waste analysis plan
  - A written inspection schedule for containers, tanks, and equipment (safety equipment)
  - Inspection records/logs of inspections conducted (dates, times, name of inspector, observations)
  - Written operating instructions for treatment units and records of dates, amounts, and types of wastes treated
  - A copy of the most recent notification submitted to HMD
  - A copy of any other required permits, e.g. air pollution or industrial waste
  - A closure plan
  - A phase I environmental assessment
  - Proof of annual waste minimization certification
- ✓ **Financial Assurance:** You are required to prepare a written estimate (closure plan) of the cost to close each treatment unit and keep a copy of the closure plan onsite. This must be done even if you are claiming to be self-certified. If your closure cost is more than \$10,000 for the facility, you must obtain a financial assurance mechanism (e.g. insurance policy,

savings account, letter of credit, etc.) for the closure of the treatment units. If your total closure cost estimate is less than \$10,000, you do not need to submit a financial assurance mechanism. However, you have to submit to HMD a signed statement using the HMD Certification of Financial Assurance form certifying that you have sufficient financial resources to meet the closure cost requirements and update the closure costs determination for inflation by March 1<sup>st</sup> of each year.

- ✓ **Containers:** If you are treating hazardous waste in containers, you are required to properly manage the containers to prevent leaks. The containers must have secondary containment that is certified by a California registered professional engineer (PE) in any transfer or storage areas, and the container storage area must be inspected weekly to ensure that the containers are not damaged or leaking.
- ✓ **Labeling:** A PBR unit must be labeled with name, EPA number, and serial number.
- ✓ **Tank Systems:** If you are treating hazardous waste in tanks, an engineer's assessment by an independent, California registered professional engineer (PE) is required on the tank system and secondary containment prior to putting the tanks into use.
- ✓ **Closure:** You are required to prepare and maintain a written closure plan. When you stop operating any hazardous waste treatment unit or process under PBR, you must remove and decontaminate all hazardous waste, waste residues, containment system components, soil, and other structures or equipment that may have been contaminated with hazardous waste from the unit. If you permanently stop using the unit, you must notify HMD in writing that you have properly closed the unit. An independent PE, registered in California, must also certify that the unit was properly closed.

### **What about Permit By Rule for Aqueous Wastes Containing Cyanides?**<sup>3</sup>

The following are highlights of the new regulations for Permit by Rule for Aqueous Waste Containing Cyanide. Please refer to the [Permit by Rule fact sheet](#) or the regulations for more details.

### **New PBR Eligible Treatment Methods for Aqueous Waste Streams Containing Cyanide**

- oxidation by addition of hypochlorite;
- oxidation by addition of peroxide or ozone, with or without the use of ultraviolet light;
- alkaline chlorination;
- electrochemical oxidation;
- ion exchange; or
- reverse osmosis.

### **New PBR Eligible Aqueous Waste Streams Containing Cyanide**

The following can be treated with any of the above named eligible treatment methods: aqueous wastes generated by:

- Rinsing workpieces and fixtures holding workpieces that were processed in cyanide-containing solutions;

- Reverse osmosis or the regeneration of demineralizer (ion exchange) columns that were used for recycling of wastewaters at facilities that maintain zero discharge of wastewaters derived from the treatment of cyanide-containing aqueous waste;
- Rinsing containers, pumps, hoses, and other equipment used to transfer cyanide solutions onsite;
- Rinsing spent anode bags or empty containers prior to onsite reuse; or
- Onsite laboratories conducting analyses and testing.

**Additional Eligible Aqueous Waste Streams/Treatment Method Activities for Aqueous Waste Streams Containing Cyanide**

- Spent process solutions containing recoverable amounts of metal may be treated by electrowinning in order to recover those metals; and
- Spent process solutions may be treated by diluting into the aqueous waste, provided the resulting solutions are further treated by any of the eligible treatment methods listed above.

**Best Management Practices**

There are many best management practices that facilities can use to reduce waste generation, and minimize or eliminate releases to work areas and the environment. The new regulations will require all facilities that chose to operate under PBR to treat cyanide waste to meet the following:

- Use holding racks or drain boards between all process and rinse tanks to contain plating drag-out, rinse solution drag-out, and return drag-out solutions to process tanks;
- Use countercurrent rinsing to reduce water use and wastewater generation when multiple sequential rinse tanks are used;
- At a minimum, every four years, review the use of cyanide-containing process baths to determine if a non-cyanide alternative with equivalent results is available; and
- Provide initial and annual training to employees, who handle cyanide process solutions, cyanide-containing rinse waters, or manage cyanide-containing aqueous waste, on how to reduce wastes in the production area.

**What is required if I treat under the Conditional Authorization (CA) Tier? <sup>4</sup>**

If you intend to operate your facility under the CA tier, you must comply with the following requirements:

- ✓ **Notification:** You must complete and submit the following forms to HMD:
  - Business Activities page;
  - Business Owner/Operator/Identification Page;
  - Onsite Hazardous Waste Treatment Notification - Facility Page; and
  - Onsite Hazardous Waste Treatment Notification – Unit Page
  - Waste and Treatment Process Page for each unit

Note that each treatment unit requires a unit specific notification form. You must submit the forms a minimum of **60 days** before beginning the first waste treatment. If you demonstrate good cause, the time period between notification and treatment can be shortened. As part of your notification, you must include documentation of any convictions, judgments, settlements, or orders resulting from environmental violations concerning the operation of your facility within the previous three years. If mailed, the forms must be sent by certified mail, with return receipt requested, to HMD. You may also submit the forms in person. Submit an amended notification page whenever there is any change to the information contained in the most recent notification submitted to HMD.

- ✓ **Generator Operating Standards:** Generators conducting CA treatment must comply with hazardous waste generator standards.
- ✓ **Operating Records:** Maintain all records required by the generator standards. In addition, all generators conducting treatment under CA must maintain the following records onsite for five years:
  - A written inspection schedule and an up-to-date log of inspections conducted of each treatment unit.
  - Written operating instructions and a record of the dates, concentrations, amounts, and types of waste treated.
  - Records to demonstrate that you are in compliance with all applicable pretreatment standards and industrial waste discharge requirements issued by the agency operating the publicly owned treatment works.
  - The most recent closure cost estimate.
  - Proof of annual waste minimization certification
- ✓ **Containers:** If you treat hazardous waste in containers, you must comply with:
  - Secondary containment requirements for all containers transfer or storage areas
  - Proper management for all containers in any transfer or storage areas
  - Proper management of the containers to prevent leaks
  - Weekly inspections of the storage areas
- ✓ **Tanks:** If you treat hazardous waste in tanks, you must comply with:
  - The standards for storage and treatment of hazardous wastes in tank systems;
  - Engineer's assessment and secondary containment certified by a professional engineer before they could be placed into service;
  - Secondary containment, unless your tank system is not yet subject to secondary containment requirements. Those tank systems without secondary containment must undergo an integrity assessment annually.
- ✓ **Financial Assurance for Closure:** You are not required to prepare and maintain a written closure plan. However, you must prepare a written estimate of the cost to close each treatment unit. Estimate the actual cost that you would incur in closing each treatment unit when using your own staff and personal equipment. Any salvage value that may be gained from the sale of wastes, facility structure or equipment, land or other facility assets may be taken into account. Submit this estimate as an attachment to the Certification of Financial Assurance for Permit by Rule and Conditionally Authorized Operations page(s) of the Unified Program Consolidated Form (revised 1999). This estimate must be adjusted

for inflation by March 1<sup>st</sup> each year. Revise the closure plan whenever a change in the plan increases the cost of closure.

- If your closure cost estimate is more than \$10,000, you must provide financial assurance for closure of treatment units by one of the financial mechanisms listed in California Code of Regulations, title 22, section 67450.13(a)(5), or an alternative mechanism, as specified in section 67450.13(c). You must submit the financial assurance mechanism and your initial notification(s) to HMD at least **60 days before** commencing the first treatment of waste.
  - If your closure cost estimate is less than \$10,000.00, there is no need to submit a financial assurance mechanism. However, you must submit to HMD a signed statement using the HMD Certification of Financial Assurance form in accordance to California Code of Regulations, Title 22, section 66270.11 to certify that the CA facility has sufficient financial resources to cover the cost of closure.
- ✓ **Closure of Treatment Units:** When you cease operating any treatment unit or process that was authorized under CA, you must:
- Remove or decontaminate all hazardous waste, waste residues, containment system components, soil, and other structures or equipment contaminated with hazardous waste from the unit.
  - Remove the unit from service in a manner that minimizes the need for further maintenance and eliminates any escape of hazardous wastes to the environment after treatment is ceased.
  - If hazardous waste contamination of the site has occurred, you must notify the HMD and the DTSC.
  - If you permanently cease operation of the unit, you must notify the HMD in writing that you have properly closed the unit. This notification should include the following information: company name and address, EPA ID number, tier of authorized unit(s), and date of closure.
- ✓ **Corrective Action:** Corrective Action includes assessing the property for any previous release of hazardous wastes using a Tiered Permitting Phase I Environmental Assessment Checklist (DTSC Form 1151), and cleaning up any contamination that poses a risk to public health and the environment. You must submit a Checklist within one year of initial authorization. Submit the checklist to DTSC and a copy to HMD by the applicable deadline. If further investigation is needed, submit a schedule for further investigating the potential problem within 90 days after you submitted the Checklist.

### **What is required if I treat under the Conditional Exempt (CE) Tier? <sup>5</sup>**

If you intend to operate your facility under the CE tier, you must comply with the following requirements:

- ✓ **Notification-** You must complete and submit the following forms to HMD:
- Business Activities Page;
  - Business Owner/Operator/Identification Page;

- Onsite Hazardous Waste Treatment Notification - Facility Page; and
- Onsite Hazardous Waste Treatment Notification - Unit Page;
- Waste and Treatment Process Page for each unit

You are required to submit an amended notification page whenever there is any change to the information contained in your most recent notification submitted to the HMD.

- ✓ **Generator Operating Standards-** Generators conducting CE treatment must comply with hazardous waste generator standards.
- ✓ **Record Keeping-** In addition to the record keeping requirements in the generator standards, you must have the following records onsite:
  - A written inspection schedule of containers, tanks, and equipment (safety equipment).
  - Inspection records/logs of inspections conducted (dates, times, name of inspector, observations).
  - Written operating instructions and a record of the dates, concentrations, amounts, and types of waste treated.
  - Records to demonstrate that you are in compliance with all applicable pretreatment standards and industrial waste discharge requirements issued by the agency operating the publicly owned treatment works.

**REFERENCES:**

1. Title 22 California Code of Regulations (CCR) Section 66260.10
2. Title 22 CCR Section 67450.1 to Section 67450.3; and Section 67450.13
3. Title 22, CCR Section 67450.11(d)
4. California Health & Safety Code Section 25200.3
5. California Health & Safety Code Sections 25201.5 & 25201.14 & 25144.6(c)